

IV. AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) An expansion valve to be equipped in an air conditioner to control the flow of a refrigerant, comprising:

~~a piping member with a refrigerant path to which is connected a pipe communicated with a device of the air conditioner having a bore extending along a longitudinal axis and into but not completely through the piping member and having a first refrigerant path portion, a second refrigerant path portion and a third refrigerant path portion extending transversely to the longitudinal axis and in communication with the bore;~~

~~a cassette unit inserted to-into the bore of the piping member;~~

~~the cassette unit comprising a tube member formed integrally with a flange member, the tube member having an interior surface defining a hollow interior of the tube member and at least a first through hole, a second through hole, a third through hole and a fourth through hole; a guide member, an orifice member and a plate member fixed to ~~an~~ the interior surface of the tube member; a valve member disposed within a valve chamber defined, in part, by the orifice member; a plate member defining, in part, the valve chamber; a spring disposed between the plate member and the valve member and biasing the valve member toward the orifice member; a shaft member for driving the valve member; a lid member welded onto the flange member; a diaphragm sandwiched between the lid member and the flange member and defining a gas charge chamber; and a stopper for transmitting a displacement of the diaphragm to the shaft member;~~

~~a ring for fixing to the piping member the lid member of the cassette unit inserted to the piping member; and~~

~~a first seal member and a second seal member, the first and second seal members being disposed between an outer diameter of the cassette unit and an inner diameter of the piping member,~~

~~wherein the refrigerant path includes a first path portion through which the refrigerant flows from a compressor to an evaporator and a second~~

~~path portion through which the refrigerant flows from the evaporator to the compressor, and~~

~~the shaft member is connected to the stopper and the valve member and extends through the first and second path portions of the refrigerant path~~

the guide member and the stopper are disposed apart from one another in a facially-opposing relationship to define, at least in part, a first refrigerant flow-through chamber of the tube member being in fluid communication with the first refrigerant path portion via the first and second through holes;

the guide member and the orifice member are disposed apart from one another in a facially-opposing relationship to define, at least in part, a second refrigerant flow-through chamber of the tube member being in fluid communication with the second refrigerant path portion via the third through hole; and

the orifice member and the plate member are disposed apart from one another in a facially-opposing relationship to define, at least in part, the valve chamber in fluid communication with the third refrigerant path portion via the fourth through hole.

2. (ORIGINAL) An expansion valve according to claim 1, wherein the axis of the refrigerant path formed to the piping member is designed according to the layout of the piping.

3. (ORIGINAL) An expansion valve according to claim 1, further comprising a rubber bush disposed to the outside of the tube member.

4. (ORIGINAL) An expansion valve according to claim 1, further comprising a rubber seal member baked onto the outside of the tube member.

5. (CURRENTLY AMENDED) An expansion valve according to claim 1, wherein the guide member, the orifice member and the plate member are caulked crimped to the tube member.

6. (CURRENTLY AMENDED) An expansion valve to be equipped in an air conditioner to control the flow of a refrigerant, comprising:

~~a piping member with a refrigerant path to which is connected a pipe communicated with a device of the air conditioner having a bore extending along a longitudinal axis and into but not completely through the piping member and having a first refrigerant path portion, a second refrigerant path portion and a third refrigerant path portion extending transversely to the longitudinal axis and in communication with the bore;~~

~~a cassette unit inserted to-into the bore of the piping member; the cassette unit comprising a tube member having an interior surface defining a hollow interior of the tube member and at least a first through hole, a second through hole, a third through hole and a fourth through hole; a guide member, an orifice member and a plate member fixed to an the interior surface of the tube member; a valve member disposed within a valve chamber defined, in part, by the orifice member; a plate member disposed at the lower end of the tube member and defining, in part, the valve chamber; a spring disposed between the plate member and the valve member and biasing the valve member toward the orifice member; a shaft member for driving the valve member; a lid member having a raised portion welded onto the tube member; a diaphragm sandwiched between the raised portion and the upper end of the tube member and defining a gas charge chamber; and a stopper for transmitting a displacement of the diaphragm to the shaft member;~~

~~a ring for fixing to the piping member the lid member of the cassette unit inserted to the piping member; and~~

~~a first seal member and a second seal member, the first and second seal members being disposed between an outer diameter of the cassette unit and an inner diameter of the piping member,~~

wherein the refrigerant path includes a first path portion through which the refrigerant flows from a compressor to an evaporator and a second path portion through which the refrigerant flows from the evaporator to the compressor, and

the shaft member is connected to the stopper and the valve member and extends through the first and second path portions of the refrigerant path

the guide member and the stopper are disposed apart from one another in a facially-opposing relationship to define, at least in part, a first refrigerant flow-through chamber of the tube member being in fluid communication with the first refrigerant path portion via the first and second through holes;

the guide member and the orifice member are disposed apart from one another in a facially-opposing relationship to define, at least in part, a second refrigerant flow-through chamber of the tube member being in fluid communication with the second refrigerant path portion via the third through hole; and

the orifice member and the plate member are disposed apart from one another in a facially-opposing relationship to define, at least in part, the valve chamber in fluid communication with the third refrigerant path portion via the fourth through hole.

7. (ORIGINAL) An expansion valve according to claim 6, wherein the axis of the refrigerant path formed to the piping member is designed according to the layout of the piping.

8. (ORIGINAL) An expansion valve according to claim 6, further comprising a rubber bush disposed to the outside of the tube member.

9. (ORIGINAL) An expansion valve according to claim 6, further comprising a rubber seal member baked onto the outside of the tube member.

10. (CURRENTLY AMENDED) An expansion valve according to claim 6, wherein the guide member, the orifice member and the plate member are caulked-crimped to the tube member.

11. (NEW) An expansion valve according to claim 1, wherein the cassette unit is inserted into the bore of the piping member in a non-contacting yet close-fitting relationship at least along the tube member.

12. (NEW) An expansion valve according to claim 11, wherein the first seal member causes the first refrigerant flow-through chamber and the first refrigerant path portion to be in fluid isolation from the second refrigerant flow-through chamber and second refrigerant path portion exteriorly of the tube member and the second seal member causes the second refrigerant flow-through chamber and second refrigerant path portion to be in fluid isolation from the valve chamber exteriorly of the tube member.

13. (NEW) An expansion valve according to claim 6, wherein the cassette unit is inserted into the bore of the piping member in a non-contacting yet close-fitting relationship at least along the tube member.

14. (NEW) An expansion valve according to claim 13, wherein the first seal member causes the first refrigerant flow-through chamber and the first refrigerant path portion to be in fluid isolation from the second refrigerant flow-through chamber and second refrigerant path portion exteriorly of the tube member and the second seal member causes the second refrigerant flow-through chamber and second refrigerant path portion to be in fluid isolation from the valve chamber exteriorly of the tube member.